8-16-91

ECOLOGICAL EFFECTS BRANCH
DATA EVALUATION REPORT

1. **Chemical:** Bromacil

2. **Test Material:** Technical grade 95.1%

3. **Study Type:** 96-hour Acute Toxicity to Mysidopsis bahia under static conditions.

4. **Study Identification:**
   **Study Director:** Boeri, Robert L.
   **Study Laboratory:** Enseco Laboratories, Marblehead, MA
   **Study Dates:** Feb. 10 - 14, 1989
   **Study Identification:** Project #DP2788
   **Sponsor:** Haskell Laboratories of DuPont de Nemours & Co.
   **EPA Identification:** MRID 415887-01

5. **Reviewed by:** Brian Montague, Fisheries Biologist
   Ecological Effects Branch
   Environmental Fate and Effects Division
   Brian Montague 8/16/91

6. **Approved by:** Les Touart, Supervisory Biologist
   Ecological Effects Branch
   Environmental Fate and Effects Division
   L. Touart 8/16/91

7. **Conclusions:** The study appears to have been conducted with sound scientific methodology and fulfills registration guidelines for estuarine shrimp toxicity testing. The reported $LC_{50}$ of 112.9 ppm (CL 67.0 to 148 ppm) is supported by the data presented.

8. **Recommendations:** N/A

9. **Submission Purpose:** Submitted to satisfy reregistration data requirements.

10. **Protocol and Methodology:** Protocol was provided to Enseco Laboratories by du Pont and developed by their Haskell Laboratories.

**Test Organisms:** Mysid shrimp were obtained from Enseco cultured stocks and those used for testing were <24 hours old. All mysids appeared normal. Prior to testing 10-20 brine shrimp nauplii were fed to mysid shrimp at 24-hour intervals. All test mysids were acclimated in dilution water under recirculating conditions in 150 L glass tanks.

**Dilution Water and Test Solutions:** The dilution water was natural seawater obtained from Atlantic coast near Marblehead. This was filtered down to five microns prior to use and subjected to activated carbon filters as well. The filtered seawater was then used to prepare stock of 285 mg/L (0.6 gms/2000ml) of Bromacil. The test solution appeared cloudy when added to the test vessels. No pesticide, chlorine, or PCB contamination was detected in dilution water.

**Study Methodology and Materials:** Test vessels were two liter glass bottles containing one liter of test solution. Ten randomly selected mysids were used per test vessel with two replicate vessels employed for controls or test groups. Five nominal concentrations of 142.6, 95.1, 57.1, 38.0, and 23.8 mg/L were employed. No solvent was used and test vessels were not aerated. Visual observations of test organisms were made every 24 hours and pH, temperature, and salinity were recorded daily. One vessel was monitored continuously or temperature.

11. **Reported Test Results:** Measured concentrations of Bromacil were quite close to estimated nominal concentrations and had mean readings of 25.7, 42, 67.0, 104.4, and 148.0 mg/L for the four samples collected at 0 and 96 hours for each concentration. Controls remained uncontaminated. Mortality was 0% for the controls, 25.7, and 42.0 mg/L concentrations, 25% for 67.0 mg/L, 30% for 104.4 mg/L and 100% for 148 mg/L concentrations after 96 hours of exposure, 100% mortality in the 148 mg/L test group occurred before 24 hours of exposure. No mortality occurred until after 48 hours of exposure in the 104 mg/L group. Water quality parameters remained within acceptable standards for the entire 96-hour period.

12. **Study Author's Conclusions:** "Test vessels containing mean measured concentrations of 104.4 mg/L and 148.0 mg/L of active ingredient initially exhibited some precipitate. This was no longer visible 24 hours after test initiation.... Control mysids had average weight of 0.9 mg and average total length of 4.1 mm.... loading rate during the toxicity test was approximately 0.009 gm/L... The 96-hour $LC_{50}$ (and associated 95% confidence limit) is 112.9 mg/L active ingredient (67.0 - 148.02 mg/L). The no-observed effect concentration (NOEC) was 67.0 mg/L active ingredient. No sublethal effects wre observed throughout the test."

13. **Reviewer's Discussion:** Though some precipitate was noted in the highest dosages initially, it appeared to go into solution by 24 hours. The measured concentrations were consistent with nominal concentration estimates, however, so it is felt that the cloudiness reported initially did not affect the final results. Agency recalculations of $LC_{50}$ levels confirmed the study author's calculations.

**Adequacy of Study**

**Classification:** Core

**Rationale:** Study followed acceptable guidelines and results confirm the study author's conclusions.

**Repairability:** N/A